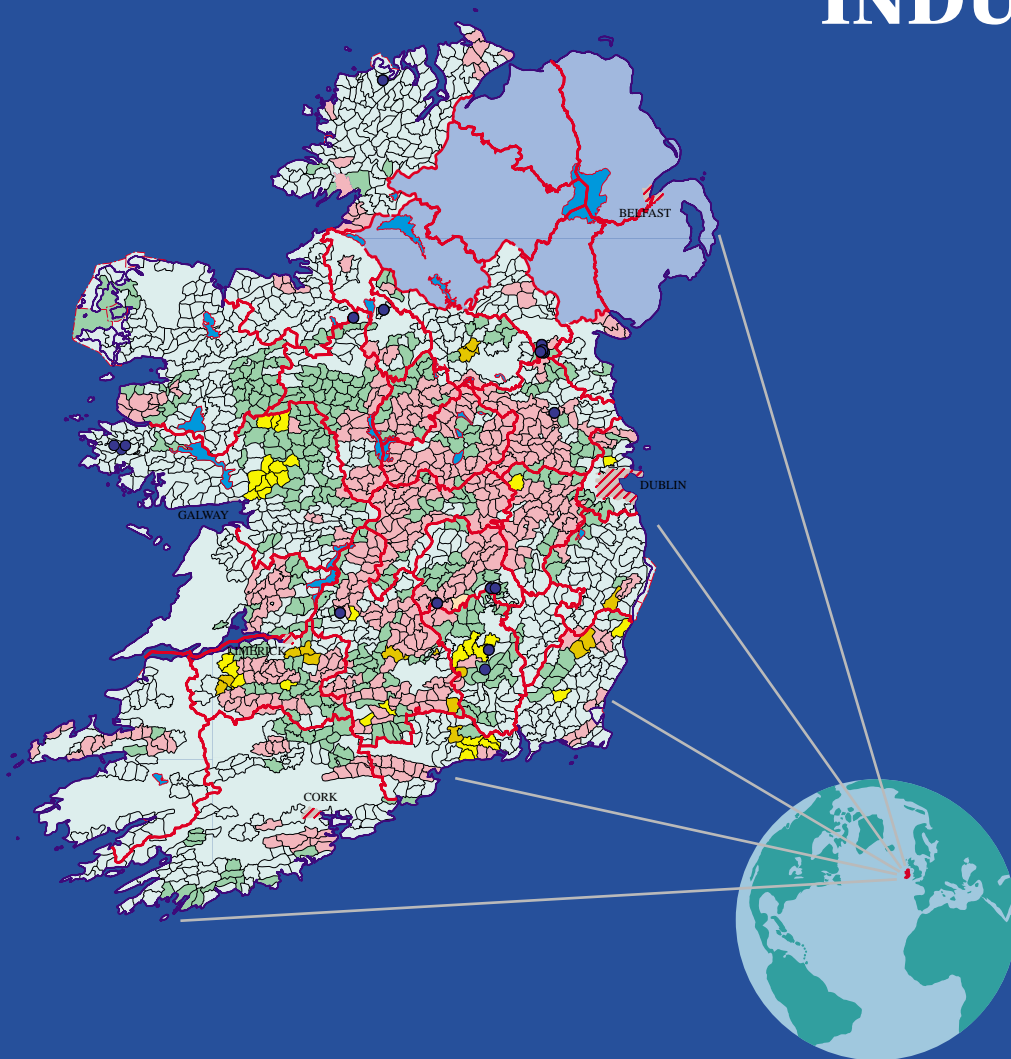


# EXPLORATION AND MINING DIVISION IRELAND

## INDUSTRY NEWS

March 2003



### HIGHLIGHTS

- *Navan zinc-lead mine back in production*
- *High grade ore zone discovered at Galmoy*
- *Renewed gold exploration interest*
- *e-Business and free data now on website*
- *Airborne geophysics interpretation initiative*



# DEVELOPMENT

- **Galmoy (Arcon Mines)**

During 2002 **Arcon Mines Ltd.** milled 660,000t of ore grading 10.1% Zn and 2.8% Pb at their underground zinc-lead mine at Galmoy, Co. Kilkenny. This yielded 102,000t of zinc concentrate (53.1% Zn) and 2,500t of lead concentrate (48.3% Pb). Total production to end 2002 amounts to 3.1Mt of ore milled at 10.6% Zn and 1.11% Pb. At the end of December 2002 ore reserves were 3.3Mt at 11.0% Zn and 2.1% Pb.

The company received a new State Mining Licence allowing it to mine reserves outside the original 1995 State Mining Licence area. The other needed permits have also issued. Planning Permission was granted in May 2002, while the Integrated Pollution Control Licence was issued by the Environmental Protection Agency in October 2002.

In August 2002 Arcon announced that the company had successfully concluded a restructuring of its long term debt and an underwritten rights issue of €28.75 million. Turnover at the mine for the first six months of 2002 increased by 3.5% to €10.5 million compared to the corresponding period of last year.

- **Knocknacran (Irish Gypsum Ltd.)**

Gypsum has been continuously mined near Kingscourt, Co. Cavan since 1936, with a 2002 production figure of some 400,000t from the open cast mine at Knocknacran. **Irish Gypsum** has announced its intention to apply for Planning Permission during 2003 for a new underground gypsum mine within the area of its current State Mining Lease.

- **Lisheen (Anglo American / Ivernia West)**

The underground zinc-lead Lisheen Mine in Co. Tipperary is a 50:50 joint venture between **Anglo American** and **Ivernia West** and is operated by Anglo American. During 2002 the mine milled 1,557,712t of ore at 11.15% Zn and 2.07% Pb. This produced 280,574t of zinc at 54.5% Zn and 35,836t of lead at 62% Pb in concentrates. Significantly improved mill output over 2001 was a result of remedial activities implemented at the mine in the area of predevelopment underground operations.

Total production since mining commenced in 1999 is 3.57Mt, at 11.34% Zn and 2.55% Pb. Reserves at end December 2002 stand at 12.8 Mt at 11.26% Zn and 1.96% Pb with additional Resources of 2.32 Mt at 9.86% Zn and 1.23%Pb.

- **Navan (Outokumpu - Tara Mines)**

Production at the **Outokumpu-Tara Mines Ltd** zinc-lead mine at Navan, Co. Meath for 2001, the latest period for which figures are available, amounted to 1,967,697t at 7.02% Zn and 1.57% Pb. This yielded 263,606t of zinc concentrates (55.46% Zn) and 44,029t of lead concentrates (62.28% Pb). At the end of 2001 ore Reserves (Proven and Probable) were 12.8Mt grading 8.9% Zn and 2.1% Pb, and Mineral Resources (Measured, Indicated and Inferred) totalled 17.2Mt at 7.1% Zn and 2.3% Pb for the Main and the South West Extension (SWEX)

orebodies.

The Navan mine is the largest zinc mine in Europe, employs some 700 people, and produces almost 200,000t of zinc in concentrate annually. Outokumpu-Tara Mines placed the underground mine on care and maintenance in November 2001. The company stated that production would be restarted when price prospects for zinc had improved significantly. In January 2002 The company undertook a comprehensive review which highlighted the need to improve the mine's technical condition, including the immediate need to carry out additional mine development and maintenance work. This work was completed, and with the subsequent resolution of a number of issues full production was resumed in September 2002.

In July 2002 Outokumpu-Tara Mines announced that the company had completed the acquisition of the Bula ore body from the Receiver. Under the terms agreed between Tara and the Receiver, Tara will acquire the ore body for €35 million. The Bula ore body abuts the NE boundary of the Tara property and contains the upper extensions of the Navan ore body. The Bula mineral resources and reserves are estimated by Tara to be in excess of 8Mt grading 10% Zn and 2% Pb.



*Brecciated banded sphalerite invaded by coarse-grained galena. Assay 30.15% Zn, 41.29% Pb, 178 g/t Ag. Core at 155.3m depth from the R Zone, Galmoy deposit. (Courtesy Arcon Exploration Plc)*



*Core from Tullybuck-Lisglassan gold prospect, grading 32 g/t Au. (Courtesy Conroy Diamonds and Gold Plc)*

# EXPLORATION

## • General

The continued low price of zinc resulted in a major reduction in grassroots exploration, with activity largely restricted to known prospects and in the vicinity of mine sites. In response to the downturn, significant concessions to Prospecting Licence holders were announced, consisting of a once-off under expenditure moratorium and a cap on minimum expenditure requirements. On the industry side **Outokumpu-Tara Mines** resumed production at their Navan mine in September, Arcon announced details of the best mineralised drill intersection ever achieved at Galmoy, and **Minco** and **Noranda** continued to meet with encouragement at their base metal prospect area near Pallas Green, Co. Limerick. The recent gold price rise in price has also caused renewed interest in gold exploration. **Conroy Diamonds and Gold** announced further intersections of gold mineralisation at the Tullyback- Lisglassan deposit in Co. Monaghan and fifteen Prospecting Licences have been recommended to another company for gold exploration in Co. Donegal. We are also pleased to note that the Irish exploration scene has been boosted by the addition of three new entrants in the past year; **Cranderry Ltd**, a junior Irish company, **Fracture Pty**, a junior Australian exploration company and **Tournigan Gold Corporation**, a Canadian exploration company.

*"I would like to take this opportunity to affirm the Government commitment to strongly encouraging mineral exploration and environmentally compatible extraction."*

Mr. John Browne, TD, Minister of State at the Department of Communications, Marine and Natural Resources  
3 March 2003.

**The year since March 2002 continued to be a difficult one for the industry.** Low zinc prices resulted in reduced exploration expenditure and significant cutbacks by several major companies. In spite of this there were a number of encouraging events.

- Production resumed at the Navan zinc - lead mine in September 2002.
- The discovery of a new high grade ore zone at the Galmoy zinc – lead deposit.
- Planned further development of the gypsum deposit at Knocknacran.
- Further encouragement at the Pallas Green zinc and Tullyback-Lisglassan gold prospects.
- Renewed interest in gold exploration.
- New exploration expenditure requirements.
- E-business facilities and a range of GIS datasets now online at [www.emd.ie](http://www.emd.ie).
- Project to provide a free geophysical interpretation of airborne magnetic data for the Central Basin zinc province.

## • Reduced Exploration Expenditure Concessions

In response to the downturn in exploration, in August 2002 the Minister of State in the Department of Communications, Marine and Natural Resources announced his intention to apply concessions in relation to certain expenditure requirements where these are sought by Prospecting Licence holders.

The key concessions are:

- A 'once off' moratorium on the expenditure requirement for licenses that fall due for renewal or review from 1st January 2002 to 31st December 2003. This will enable companies to merely pay the relevant fees to retain their licences.
- A 'cap' on the requirement for the following two year period of €20,000 per licence. Licences more than six years old will benefit from this concession.

The Prospecting License holder seeking the expenditure moratorium will be required to submit a comprehensive report on all work carried out to date on each license or block of licenses. The licensees will also be required to advise EMD as to whether they are looking for a joint venture partner for the licenses. If a joint venture partner is being sought, the above report will be made publicly available on the EMD website.

## • Company Activities

During 2002 **Arcon Exploration Plc** continued to carry out exploration on 16 prospecting licences. Six of these, including a licence in which Arcon is in joint venture with **Westland Exploration Ltd** (a subsidiary of **Ennex International**), comprise a contiguous block around the Galmoy Mine. The other licences are: two in Co. Longford along strike from the Keel base metal deposit; four licences in Co. Offaly, two of which cover the highly prospective Navan/Silvermines corridor and two cover the Ferbane inlier; one licence in Co. Tipperary, which includes the Shanakill zinc/lead/ barite prospect; and one licence in Co. Limerick, in which the Carrickittle zinc/ lead prospect occurs and which is also adjacent to the Noranda/Minco Pallas Green prospect.

Due to the depressed zinc prices Arcon carried out very little drilling in the first half of 2002. However, following the successful debt restructuring of the parent company, **Arcon International Resources Plc**, and a rights issue, drilling recommenced in August under a policy of concentrating on areas surrounding the Galmoy mine.

One of the first tested areas was a gravity high sited 350m southeast of the CW South Zone of the mine. (The gravity high was outlined during a regional gravity survey carried out in 2001 to establish a structural linkage between the Mine area and the Rapla Prospect). The first hole, 3245-99, intersected 10.71m of zinc/lead mineralization running 19.51% Zn and 3.65% Pb at 126.10 to 136.81m depth, and many of the subsequent 21 published resource- grade holes have intersected even higher grade mineralization in what has been named the **R Zone**. The best intersection to date, in hole 3245-116, of 31.27m at 31.85% Zn, 9.37% Pb, is, in terms of contained metal, the best intersection of Waulsortian Limestone Formation hosted mineralization recorded in Ireland. Delineation of the R Zone is continuing.

**Asarco Exploration Company Inc.** (a subsidiary of **Grupo Mexico**) currently holds 15 prospecting licences over Carboniferous plays in the east and south Irish midlands. Changes in company structure over the past number of years, coupled with market realities, have resulted in significantly reduced budgets. Despite this Asarco has retained a positive programme in Ireland with some encouraging results in the Allenwood-Carbury area of Co. Kildare.

# EXPLORATION

In 2002 Asarco was granted 3 prospecting licences in Co's Tipperary and Limerick. Interest in the area results from the intersection of significant disseminated Zn and Pb mineralization in Waulsortian lithologies associated with faulting, and delineated with the aid of detailed gravity and aeromagnetic surveys.

**Aurum Exploration Ltd** was incorporated in May 2002 by the Irish-based technical staff of **Navan Mining Ltd**, following the cessation of that company's exploration activities and withdrawal from Ireland. Aurum currently operate as both a mineral exploration service and mineral exploration company.

Aurum has acquired proprietary rights to all Navan's Irish assets including extensive drillhole, geochemical and geophysical databases. In addition the company continues to manage Navan's remaining interests in their joint venture with **Tara Mines Ltd** in Ireland, and is contracted to operate the licences currently held under this joint venture agreement (47% Navan, 53% Tara), for which results to date have been encouraging. Aurum currently hold eight prospecting licences in Ireland for base and precious metals.

**Conroy Diamonds and Gold Plc.'s** gold dominated exploration programme in the Republic of Ireland is focused on the Longford-Down Massif. The Company's ground holding, comprising a contiguous block of 27 prospecting licences, covers an area in excess of 1,000km<sup>2</sup>, in Counties Monaghan and Cavan. The Company also holds adjacent acreage in Co. Armagh in Northern Ireland. The Company's model for mineralisation for the 'Armagh – Monaghan Gold belt' in the Longford – Down Massif involves interaction of the Orlock Bridge Fault with deep seated geological features as well as lateral displacement of the fault and the presence of Caledonian age intrusive rocks.

Three separate gold deposits have been identified in the belt by drilling. Recent drilling at the Tullybuck-Lisglassan deposit in Co. Monaghan has included the intersection of a 67 metre geologically defined zone of gold mineralisation. This zone is much wider than any previous intersection at the deposit, and has important implications for the demonstration of an economic resource.

Elsewhere in the Longford-Down Massif, at Slieve Glah in Co. Cavan, a recent detailed soil geochemistry programme has defined a number of extensive gold anomalies. Trenching to bedrock is planned in these areas as part of a follow up programme.

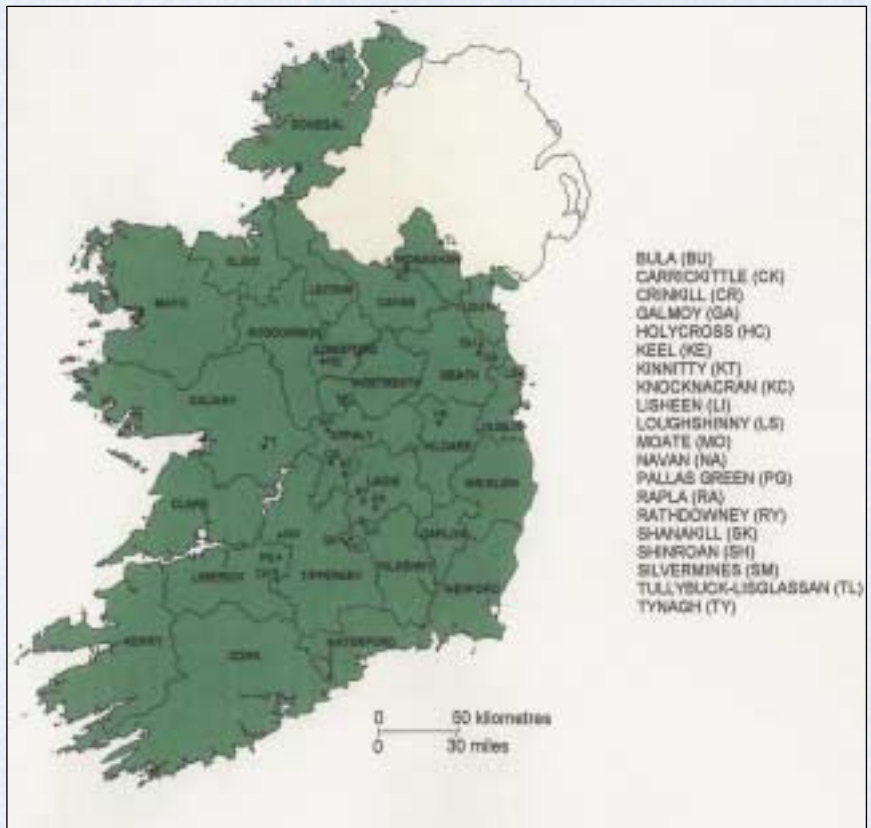
**Minco** had their exploration focus for all of 2002 on their 13 licence block area in the Pallas Green area, Co Limerick. Together with their 75% partner, **Noranda**, Minco drilled 13 holes for a total of 3500m. Considerable encouragement was derived from this exploration with the discovery of a new and extensive zone 12km west of Castlegarde, where two high-grade massive sulphide lenses had been previously discovered by Minco and Noranda. Ten drill holes have outlined a zone of massive mineralisation with variable, low-grade zinc and lead values, over a strike length of 5kms.

Minco regards the Pallas Green area as one of the best zinc targets in Ireland. However, most of the 25km strike remains unexplored by drilling and the rest has only been drill tested by widely spaced, isolated holes. Minco are actively seeking partners to continue drilling programmes.

**Mineral Estates (Ireland) Limited's** Loughshinny Project consists of four contiguous licences in north County Dublin and east County Meath. The licence group covers the southern and eastern part of the (Lower) Palaeozoic Balbriggan Block and the northern margin of the (Carboniferous) Dublin Basin, and as such straddles a major growth fault which forms the northern boundary of the Dublin Basin proper.

Diamond drilling of the main prospect, north of the major growth fault, has shown the presence of replacement-style base metal mineralization, in a geological sequence which is considered to be similar to that at Navan. The best intersections are 4.3 metres at 2.09% Zn + Pb 170m depth ( including 0.35m at 10.55% Zn +Pb) and, in a separate hole, 2.5m at 1.86% Zn +Pb at 28m depth. It is considered that this prospect has the potential to host a significant base metal deposit and a very considerable area remains to be drill-tested.

Extensive stratigraphic drilling in conjunction with the detailed magnetic surveys has also demonstrated the presence of at least two other target zones, which appear to be of substantial size potential. Preliminary diamond drilling of these has shown that the Navan-equivalent sequence, if preserved, is likely to be at a depth in excess of 600 metres in each prospect. The company is presently seeking a partner to fund further exploration.



Map showing localities mentioned in the text.

- Airborne Geophysical Surveys

During 2002 one low-level airborne geophysical survey was carried out over the prospective Loughshinny area of Co. Dublin by **Amcorp**.

# EXPLORATION

## • Prospecting Licence Information

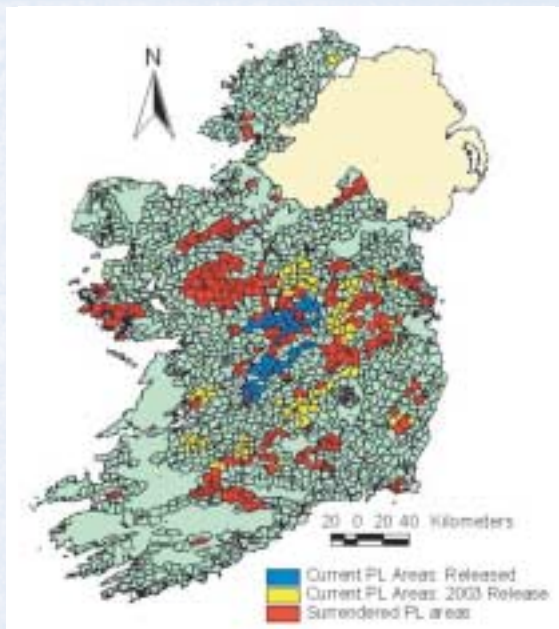
During 2002, 33 new Prospecting Licences (PL's) were issued, while over the same period 124 licences were surrendered; the number of licences currently held is 346.

**Asarco Exploration** were awarded four licences which are held in Cos. Limerick and Tipperary. **Amcorp Ireland Ltd** were awarded eight licences; seven in Co. Dublin and Co. Meath and one PL in Co. Sligo. All PLs were for base metals, silver and barites. Two PL's were issued to **Kenmare Resources** in Co. Carlow for Caesium, Lithium, Niobium, Tin, Tantalum and Tungsten. **Cranderry Ltd** were awarded eleven licences in Cos. Clare, Meath and Louth. These were issued for base metals, barytes, silver and gold. **Tara Mines** received three PL's in Co. Limerick for base metals, barytes, silver and gold and they were also issued one PL in Co. Meath for base metals, barytes and silver. **Navan Resources Plc** were granted three licences in Co. Galway. Finally **Fracture Pty** were granted one PL in Co. Tipperary.

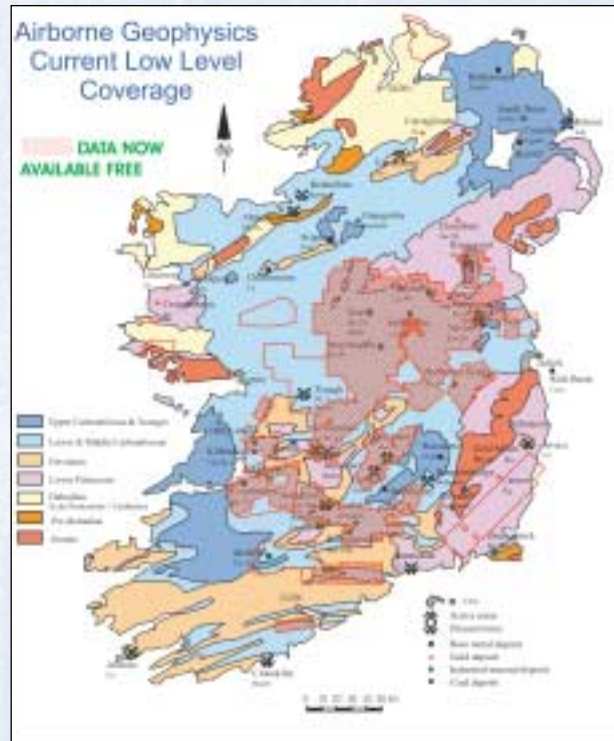
## • New Initiatives

The Exploration and Mining Division (EMD) is engaged on four significant complementary initiatives to encourage exploration investment and stimulate interest. The latest of these, the Airborne Magnetic Interpretation Initiative, was started in late 2002. The common theme is to provide, free of charge and in digital format, all non-confidential data that is available through the Division, and to provide added value when the opportunity arises.

- **Airborne Data Release Initiative 2001.** Low level high resolution geophysical surveys have been flown over 58 areas by various companies under the EMD 'open skies' policy since 1995. Some 35% of the country, largely prospective Lower Carboniferous terrain, has been covered. All data is lodged with EMD, and once the 4 year confidentiality period has expired is being made progressively available to the public under this initiative. The first survey was released in June 2001, and to date over 70% of the coverage has been made available **free** (see Figure ) on CD. Each release includes digital databases, grids and maps. Additional maps generated by EMD are also included.
- **Exploration Data Release 2002.** Until now the only available company exploration data was from exploration ground that has been surrendered. Under this initiative all data over six years old from currently held Prospecting Licence areas will also now be released, providing a wealth of previously unavailable information **free of charge**. The initial phase is focused on long-held areas that comprise a third of the current acreage, with a further block just released (see Figure) on CD. All reports, drill logs and maps are in digital format. Data from areas surrendered since January 2000 (see Figure) is also being made available digitally in a similar manner



**Map showing prospecting licences for which exploration data has been released since 1st January 2000. 'Current prospecting licences' refer to the Exploration Data Release Initiative.**



**Current coverage and availability of low-level airborne geophysical surveys**

- **Airborne Magnetic Interpretation Initiative.** A Public- Private Participation Programme (PPP) was initiated in late 2002 with PGW Europe Ltd., to process and interpret the newly released airborne magnetic data covering the highly prospective Central Basin area of Ireland. Three blocks are involved (see Figure), the first of which will be available **free** on CD in April 2003.

The primary objective of the Initiative is twofold: a) to interpret the basement structure, tectonic framework and lithology from the airborne geophysical results and to b) correlate and combine these results with the known geology of central Ireland to aid identification of potential exploration targets for base metal mineralisation. The Interpretation Initiative involves the application of improved processing techniques and cultural source removal from the total magnetic field. In order to enhance the signatures of the basement structures and lithologic units, as well as volcanics lying above the older basement, a number of processed images derived from the total magnetic field will be produced. Geophysical interpretation maps of the geology of the Central Basin, processed magnetic maps (Pole Reduced First Vertical Derivative) and a report including the details of the magnetic datasets and processing techniques and a discussion of basement structures and lithology will also be produced, together with an assessment of the known mineralisation.

# EXPLORATION

- **The MAPS Initiative.** The MAPS (Minerals Administration Programme Support) Initiative is an ambitious major project designed to provide industry globally with all the needed information and available background data to assess ground and handle the business requirements of exploration permitting through the internet. Started in December 2001, it is intended to be completed in late 2003. The key elements of the Initiative are streamlining internal processes and automated regulatory procedures leading to quicker permitting, e-Enabled business, free web access to all the data being released under the other two Initiatives, and all geographically based data (licence areas, base maps, environmentally restricted areas, forestry coverage, basic geology, airborne and ground exploration maps etc) in GIS format.

The first phase is now available online at [www.emd.ie](http://www.emd.ie). This provides eBusiness facilities for applying for Exploration Licences, regulatory information and a range of GIS datasets that include ground status and limited exploration company data. The site will be progressively upgraded and the content range expanded under the project; in doing so we would welcome customer feedback for any improvement proposals. The Initiative is committed to establishing Ireland at the forefront internationally in terms of offering maximum ease of access to full information availability and business transactions.



Map showing areas covered by the Airborne Magnetic Interpretation Initiative.

## Geological Survey of Ireland

During the past year the Geological Survey of Ireland has progressed several key programmes. Under the Minerals Programme the Mineral Potential Mapping Scheme has been started for one County (Wicklow), while another project focusing on the potential for new zinc – lead discoveries at the same stratigraphic level as the Navan deposit, in the North Midland region, is being completed. The Bedrock Programme has completed the 1:100,000 series which will be made available in seamless digital format during 2003. Under the Information Management Programme the digital capture of paper based records has just been completed, with the aim of creating a web-based virtual Geological Data Warehouse. Minerals data will be accessed through graphical user interface.

## Silvermines Historic Mining District, Co. Tipperary

In June 2000 the Department of Agriculture, Food and Rural Development published a report on the influence of lead on human and animal health in the historic mining district of Silvermines, Co. Tipperary. The report found that the Silvermines district was a safe place to live and farm, but draw attention to the need to undertake closure and remediation measures, and to reduce the risks to life and the environment. The Department of Marine and Natural Resources undertook to provide costed management/remediation plans for all mining-related sites in the Silvermines district. The plans were published in May 2002, and are available on the Division's website.

The report also recommended, as a priority, that an Expert Group be established to formulate guidelines applicable to Ireland on the management of lead in the environment. An Interim Report by the Expert Group in April 2002 stated that the guideline value for lead concentration in soils and sediments in mining areas, above which "active management" of the environment is recommended, should be 1,000mg/kg. A copy of the report is available on the Environment Protection agency website, [www.epa.ie](http://www.epa.ie).

## Expenditure on Exploration and Development

During 2001 expenditure on mineral exploration totalled CAN\$18.58 million, an increase of 6.2% over 2000 (CAN\$15.03 million). This improvement was due to a significant increase in exploration work within State Mining Facilities. Within Prospecting License areas expenditure was markedly lower at CAN\$11.48 million (CAN\$14.05 million in 2000), and continued to be dominated by base metal exploration at CAN\$11.11 million. Mineral development costs of CAN\$24.43 million were essentially related to base metals operations.

## Website

The Department of Communications, Marine and Natural Resources website, [www.dcmnr.gov.ie](http://www.dcmnr.gov.ie) has recently been updated, and includes useful information on the Exploration and Mining Division. The Exploration and Mining Division also has its own IP address at [www.emd.ie](http://www.emd.ie). We invite you to visit the site and to let us know how we can be of further help to you. As outlined above, our recent Initiatives will result in substantial improvements over the next months.



Map showing the latest prospecting licence areas for which exploration data has been released under the Exploration Data Release Initiative.